Telkom VPN-Lite router setup
User Manual
Billion 800VGT

Contents

1 Introduction 3
2 Before you start 4
Register VPN-Lite service. 4
Reading your LAN Subnet 5
3 Firmware Upgrade 6
Connect to your router 6
Firmware Upgrade 6
4 VPN-Lite Setup Using Windows Utility 7
Internet Account 7
VPN Lite – Local Site Configuration 8
Advance Settings 9
5 VPN-Lite Setup using your web browser 10
Connection to the router using your web browser 10
Setup your VPN-Lite 10
Configure your router IP address 13
6 VPN-Lite Manual Setup Using Telnet 15
IP Management: 15
Setting up the VPN-Lite solution: 17

1 Introduction

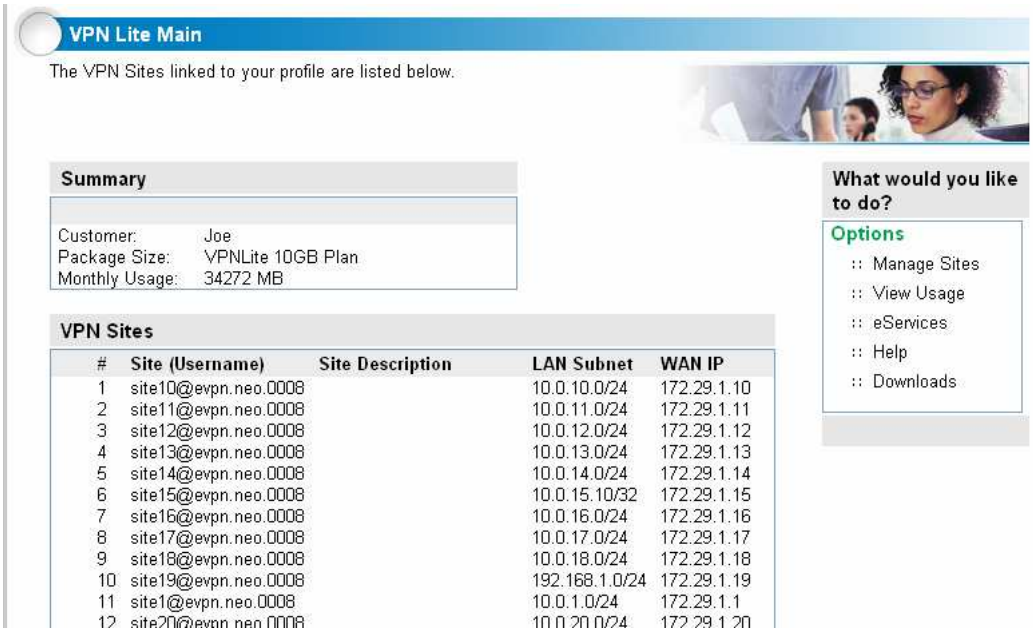
Welcome to the Telkom VPN-Lite router setup user manual. In this manual you will receive information on how to setup your Telkom ADSL router using the Telkom VPN-Lite setup utility, your Internet Explorer and Telnet commands (advanced user only). To ensure that the utility works correctly please temporarily disabled all software firewall applications. These applications may interfere with the processes needed to successfully complete the router setup. Examples of these applications/programs include: Norton, PC-Cillin, Bit Defender, McAfee.

2 Before you start

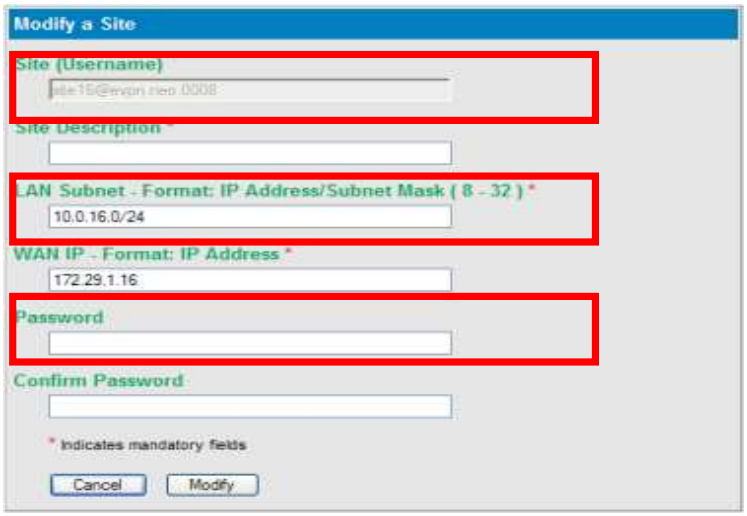
Register VPN-Lite service.

To enable you to configure the Telkom VPN-Lite service on your Billion Router you first need to register for the VPN-Lite service on the Telkom website (www.telkom.co.za).

On the VPN-Lite registration site you will be able to configure and manage your VPN-Lite sites as shown in the image below.



Here you will retrieve vital information like site Usernames and LAN Subnets and Site Password to configure the VPN-Lite sites. In the setup sections you will be required to supply these values. Please ensure that you have all the correct information for each site before you start any of the setup sections mentioned in this document.



Reading your LAN Subnet

The site IP address is supplied with a slash subnet notation (10.0.0.0/24) below you will find a diagram to show you how to translate your site IP address.

255.128.0.0 (/9)	255.255.240.0 (/20)
255.192.0.0 (/10)	255.255.248.0 (/21)
255.224.0.0 (/11)	255.255.252.0 (/22)
255.240.0.0 (/12)	255.255.254.0 (/23)
255.248.0.0 (/13)	255.255.255.0 (/24)
255.252.0.0 (/14)	255.255.255.128 (/25)
255.254.0.0 (/15)	255.255.255.192 (/26)
255.255.0.0 (/16)	255.255.255.224 (/27)
255.255.128.0 (/17)	255.255.255.240 (/28)
255.255.192.0 (/18)	255.255.255.248 (/29)
255.255.224.0 (/19)	255.255.255.252 (/30)

- This manual assumes that the Billion 800VGT is in its factory default state. Thus:
  LAN IP = 10.0.0.2
- It is recommended to use the utility to setup VPN-Lite on your Billion 800VGT.

3 Firmware Upgrade

Connect to your router

Open a web browser like Internet Explorer of Firefox. In the address bar type in http://10.0.0.2 and press enter. You will be prompted to supply a username and password to logon to the router. User name = admin Password = admin.

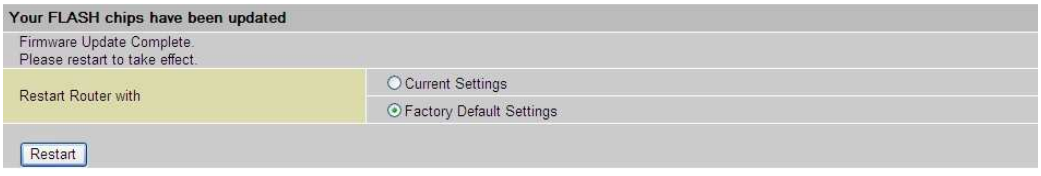
Connect to 10.0.2.2
The server 10.0.2.2 at WebAdmin requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
Password:
Remember my password
OK
Cancel

Firmware Upgrade

In the left menu select Configuration – System - Firmware Upgrade. The following screen will appear on the right.

Click on the Browse button to select the firmware file and then pres Upgrade to start the firmware upgrade process. A progress screen will give indication on the progress of the upgrade do not switch off the router or disconnect any cables at this stage.

On completion of the upgrade you will be prompted to restart the router as shown below. Select Factory Default Settings and press Restart. Your router will now restart with the new firmware.



4 VPN-Lite Setup Using Windows Utility

On start up you will be requested to provide login information to connect to the router. By default the router login name will be admin and the login password will be admin. The default IP address for the router is 10.0.0.2 but if this has changed unselect the Use default IP check blocks and enter the current IP address of your router.

After a successful login the following screen will appear. Here you can setup your Internet Account information, VPN-Lite and with the advance settings you can change your DHCP settings.

Internet Account

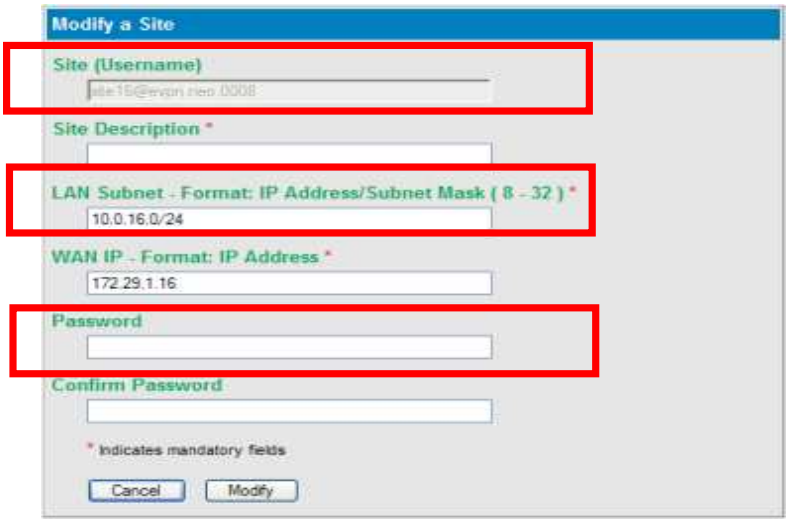
Select Activate Internet Account configuration to set your Internet username and password.

VPN Lite – Local Site Configuration

Before you start with this section, please make sure you have registered on the VPN-Lite service website and that you have received your VPN-Lite account and IP information for the local site. This information will be required when setting up the solution.

To change these settings select Activate VPN-Lite configuration.

On the Telkom website www.telkom.co.za you can login to manage your VPN Lite packages. Here you will also extract information like your site username, site password and site IP range as seen below.

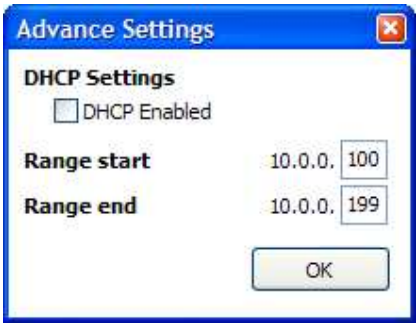


The site LAN IP range needs to be with a subnet slash notation (10.0.0.0/24) below is a diagram to show the translation for the slash notation.

255.128.0.0 (/9)	255.255.240.0 (/20)
255.192.0.0 (/10)	255.255.248.0 (/21)
255.224.0.0 (/11)	255.255.252.0 (/22)
255.240.0.0 (/12)	255.255.254.0 (/23)
255.248.0.0 (/13)	255.255.255.0 (/24)
255.252.0.0 (/14)	255.255.255.128 (/25)
255.254.0.0 (/15)	255.255.255.192 (/26)
255.255.0.0 (/16)	255.255.255.224 (/27)
255.255.128.0 (/17)	255.255.255.240 (/28)
255.255.192.0 (/18)	255.255.255.248 (/29)
255.255.224.0 (/19)	255.255.255.252 (/30)

Advance Settings

In the advance settings you can enable or disable the router's DHCP settings. Please remember that if you disable the DHCP settings you will loose connection to your router after the settings have been updated. You can also set your DHCP start and end range.



5 VPN-Lite Setup using your web browser

This section will guide you throw the relative steps to setup you VPN-Lite service using your web browser.

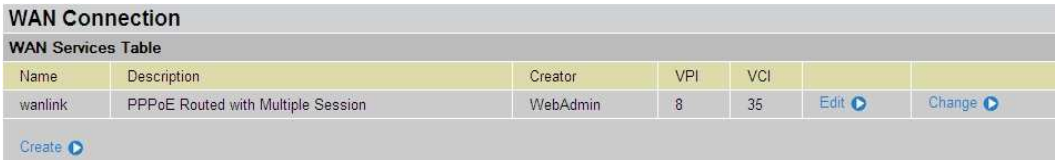
Connection to the router using your web browser

Open a web browser like Internet Explorer or Firefox. In the internet address bar type in your router's IP address 10.0.0.2 and press enter. You will be prompted to supply a username and password. The user name is **admin** and the password is **admin**.

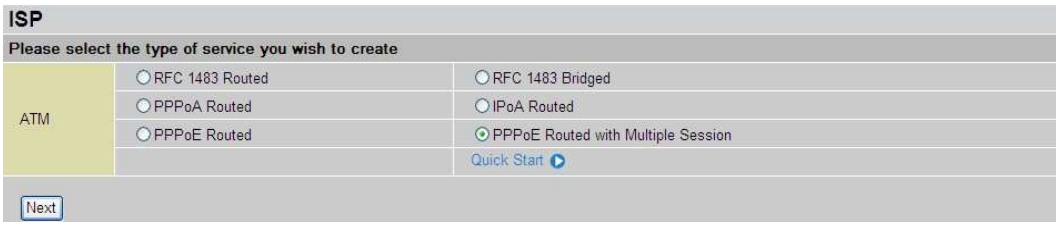
Connect to 10.0.2.2
The server 10.0.2.2 at WebAdmin requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
Password:
Remember my password
OK
Cancel

Setup your VPN-Lite

After the page was successfully loaded in your web browser select Configuration – WAN – ISP in the menu on the left of the screen. The following screen will appear on the right.

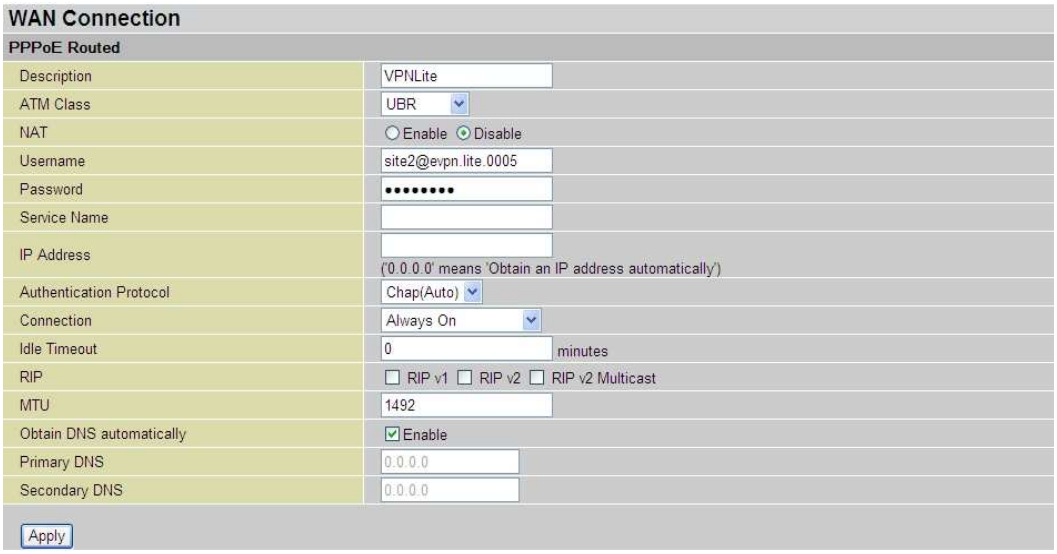


Click on Create to add a new WAN Connection for VPN-Lite and select PPPoE Routed with Multiple Session as indicated below.

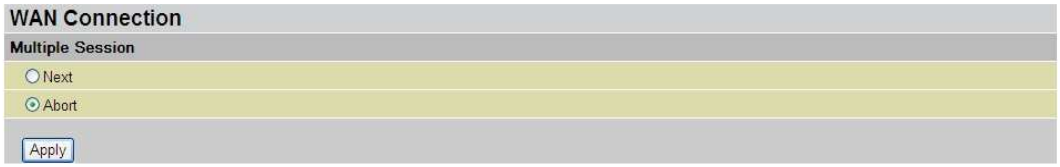


Click on the Next button to continue.

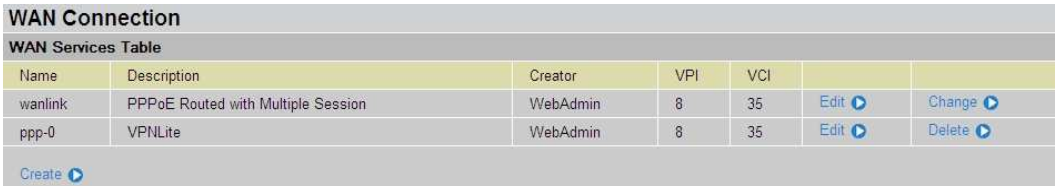
You will require your VPN-Lite site username and password that you retrieved from the Telkom VPN-Lite setup site. You can change the Description field to VPNLite, Disable the Nat setting and enter your VPN-Lite site Username and Password. Click on Apply to save the settings.



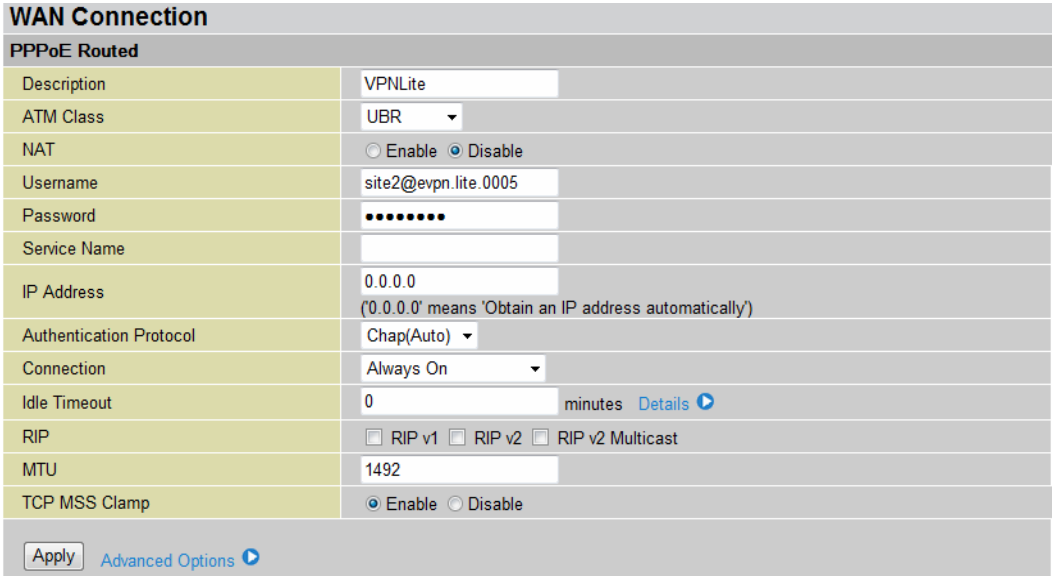
In the next step select Abort and click on Apply



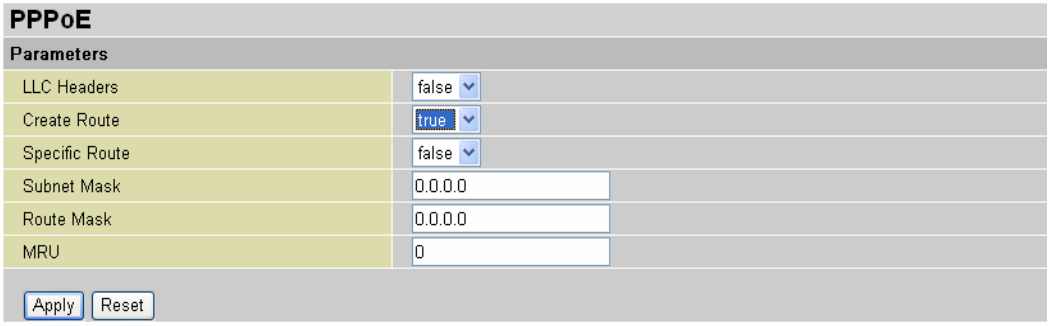
You will now see your new WAN Connection called VPNLite in the WAN Connection list.



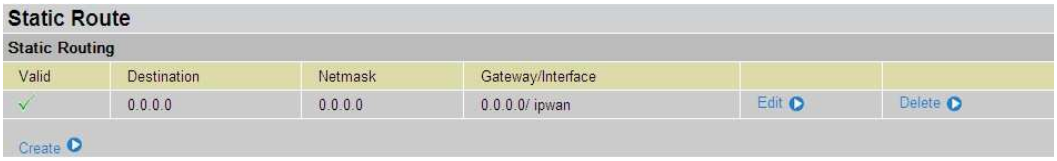
On the new VPNLite connection click on Edit and the following screen will appear



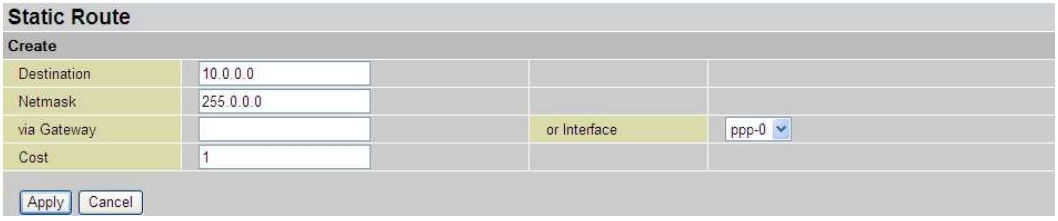
Now, click on Advanced Options and the following screen will appear



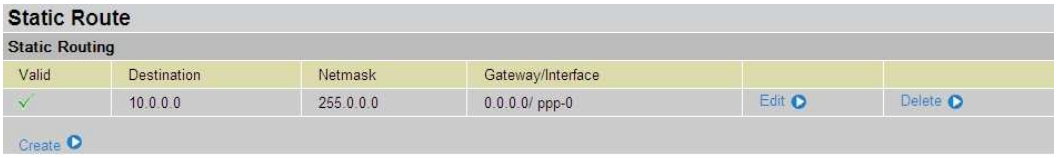
The Create Route option is set to true by default, you need to set it to false as the router will only allow 1 default route. Now click on Apply. In the menu on the left click Configuration – Advanced – Static Route and the following screen will appear.



On the above screen click on create to add a new static route and the following screen will appear



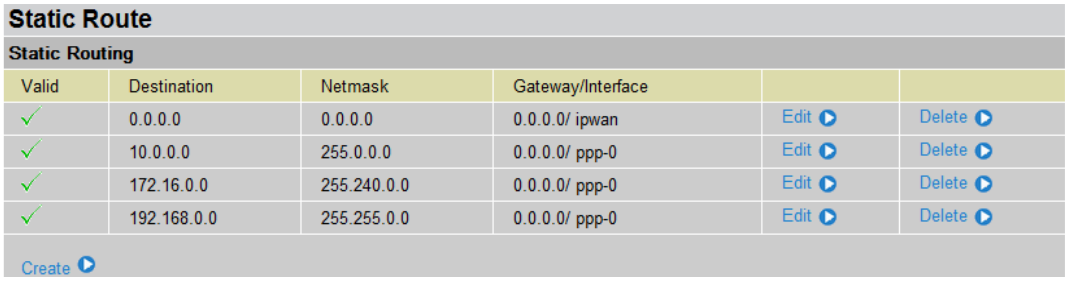
You need to setup 3 Static Route's for your VPN-Lite. You should supply the Destination, Netmask and Interface. The first Destination is 10.0.0.0 Netmask should be 255.0.0.0 and for interface select ppp-0. Select apply to save the first Static Route.



Click on create to add the following 2 Static Route's.

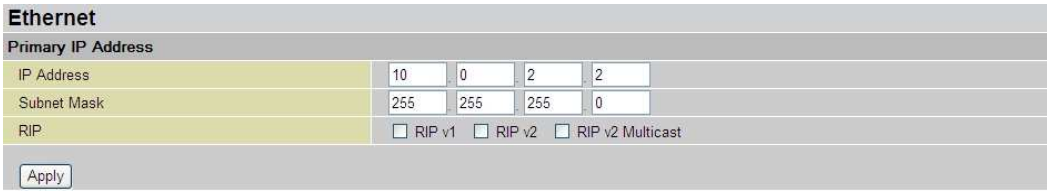
Destination	Netmask	Interface
172.16.0.0	255.240.0.0	ppp-0
192.168.0.0	255.255.0.0	ppp-0

After adding all the Static Routes you should have a screen looking like the following:



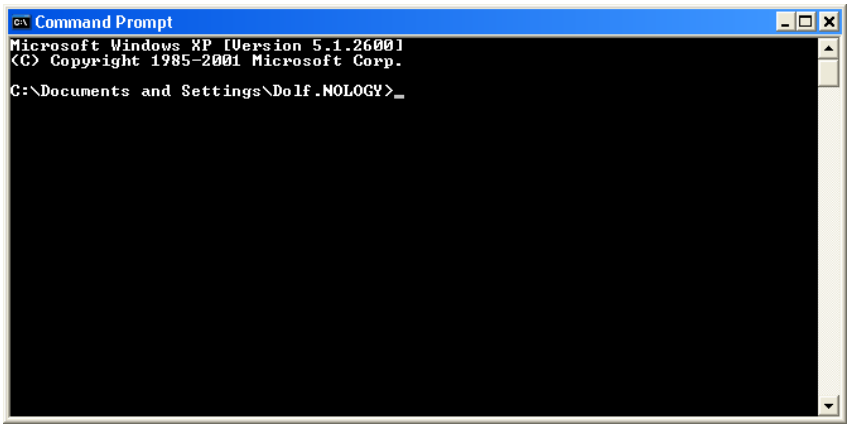
Configure your router IP address

From the menu on the left select Configuration – LAN – Ethernet. The following screen will appear on the right.



On the Telkom VPN-Lite setup site you would have received a LAN Subnet address that could look like this 10.0.2.0/24. Your IP would then be 10.0.2.2 and your Subnet Mask will be 255.255.255.0. Change the IP Address and the Subnet Mask on the screen and press the Apply button.

Your routers IP address is now changed to the new entered in the previous step. To ensure that your pc can still communicate with your Billion router you should release and renew your PC's IP. In XP or Vista press the Start button. Select All Programs\Accessories\Command Prompt. A DOS prompt screen will appear



Type the following and press enter: ipconfig /release
Then type: ipconfig /renew.

Your PC's IP will now be renewed to enable you to connect to your Billion router. You can now close the Command Prompt screen.

To reconnect to your router select the link with the new IP address displayed in your Internet Browser.

LAN Connection
Description
Device's IP has be changed temporarily. Do not forget to Save Configuration to FLASH to take effect. Currently, you can click http://10.0.2.2 to continue your configuration. Please check and re-apply the Virtual Server setting.

Your Internet Browser will now reconnect to your Billion router.

Now in the bottom right corner click on the SAVE CONFIG button. The following screen will appear.

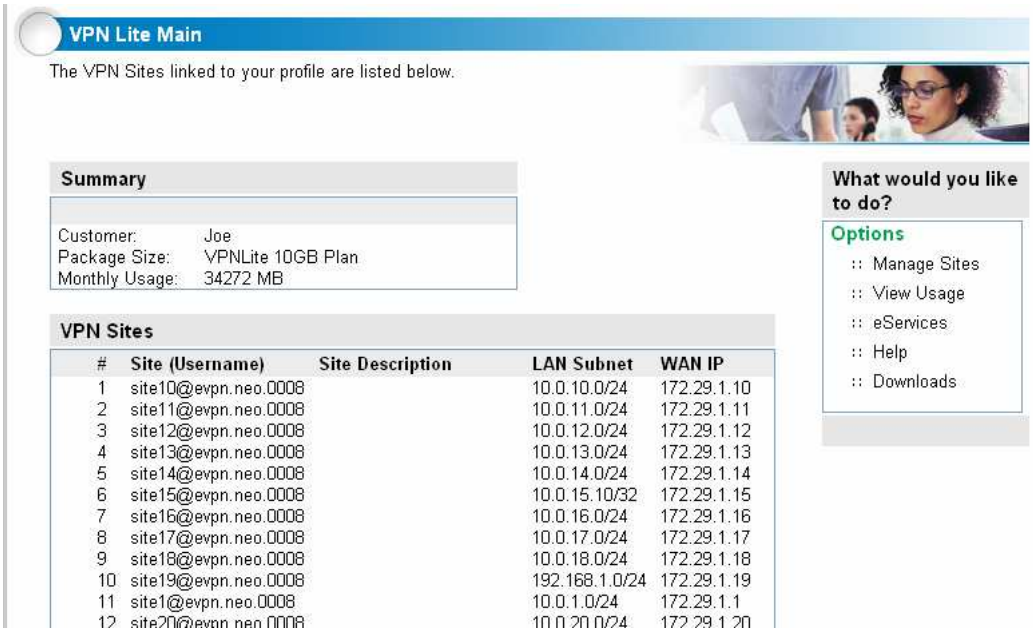
Save Config to FLASH
Please confirm that you wish to save the configuration.
There will be a delay while saving as configuration information is written to FLASH chips.
Apply

Click on the Apply button. Your settings will now be saved and you can start to use your VPN-Lite service.

6 VPN-Lite Manual Setup Using Telnet

- This section assumes that the Billion 800VGT is in its factory default state. Thus:
  LAN IP = 10.0.0.2
  DHCPrange = 10.0.0.100 -10.0.0.199
- Before you start, please make sure you have registered on the VPN-Lite service website and that you have received your VPN-Lite account and IP information for the local site. This information will be required when setting up the solution.
- It is recommended to use the utility to setup VPN-Lite on your Billion 800VGT. This manual setup method is to be used by experienced users only.

Refer to the screenshot of the VPN-Lite website below. Note the menu option on the right-hand side from where you can manage your VPN-Lite sites and profile.

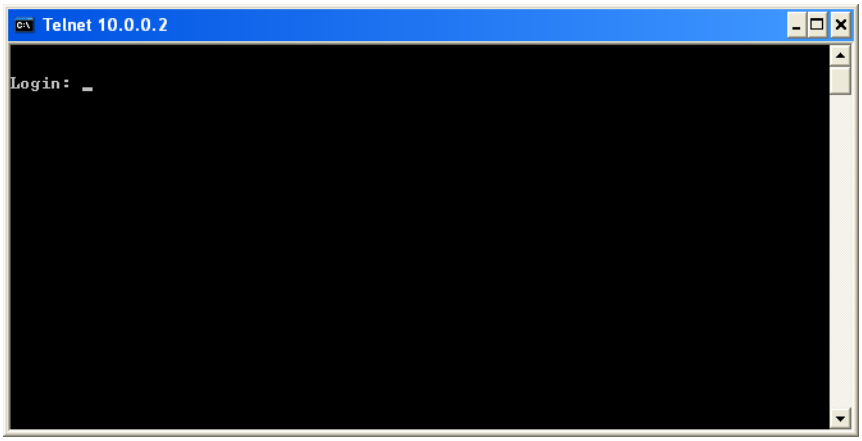


Please carefully follow and perform the procedure as outlined below:

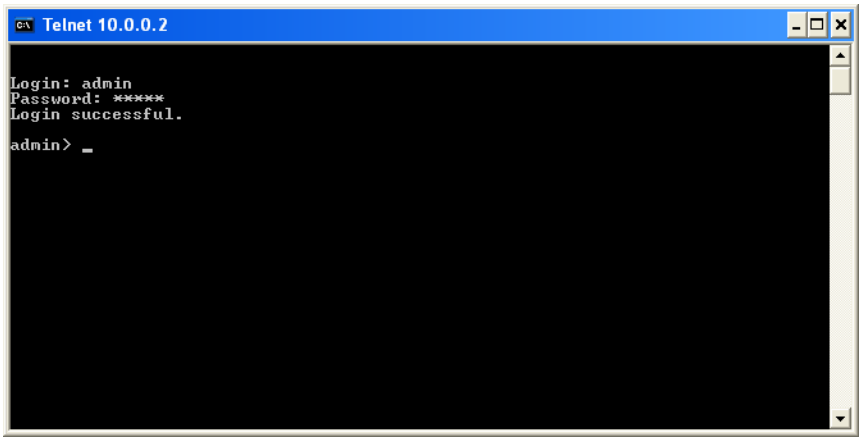
IP Management:

a. Telnet to the Billion 800VGT using the router's LAN IP address (default = 10.0.0.2) using this command: "telnet 10.0.0.2".

This will access the Billion 800VGTs CLI interface allowing you to send setup commands. On successful connection, you will be prompted for a login and password (defaults: admin & admin). See screenshot below.



Enter your administration login & password. On successful authentication you will arrive at the admin prompt. (See screenshot below.)



b. Setting the DHCP Server: This task is optional. If you want your Billion 800VGT to act as a DHCP server – distributing IPs to your LAN PCs – please perform this step.

Set the router's DHCP range to the correct target range using this command:
Syntax: dhcpserver set subnet 1 <Target range network address> <Target range subnet>
Example: dhcpserver set subnet 1 10.0.17.0 255.255.255.0

This router will now distribute IPs to connected PCs from the range 10.0.17.1 -> 10.0.17.254

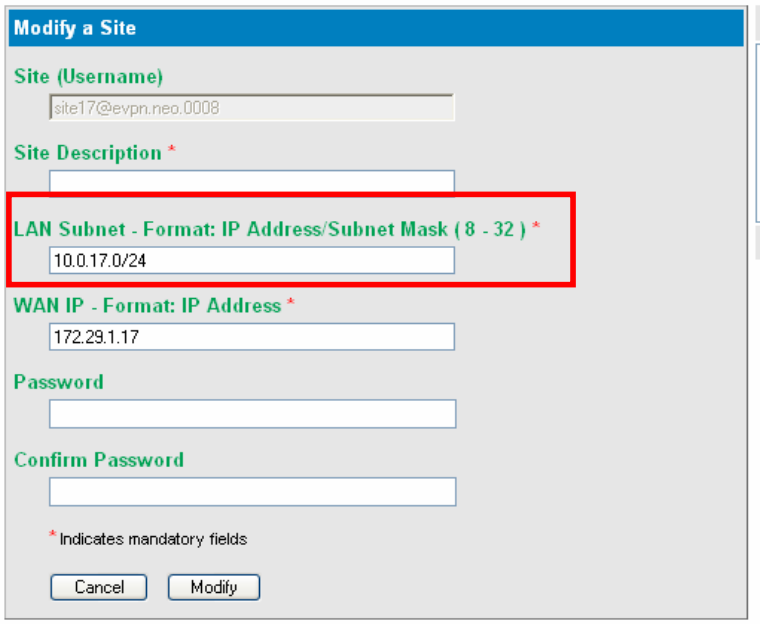
Note: Alternatively, if you prefer to use static IPs on your network and you wish to disable the router's DHCP server feature, please run this command: dhcpserver disable

c. Set your router's LAN IP address: Please run the following command to set your router's LAN IP address to within the correct target IP range. (Note that if using DHCP server, this LAN IP must be in that same IP range).

Note that your telnet session will become unresponsive after you execute the command and will eventually terminate. This is due to the router's altered LAN IP that was originally used to setup the Telnet connection, but has now been changed.

Syntax: ip set interface iplan ipaddress <LAN IP> <Subnet>
Example: ip set interface iplan ipaddress 10.0.17.2 255.255.255.0

Please see the correct LAN IP target range for your local site indicated on the VPN-Lite web page screen shot below.



Note that the router uses the subnet syntax instead of the slash notation (/24) used to display the LAN IP range on the website. Use the table below to translate the slash notation to the subnet mask syntax.

255.128.0.0 (/9)	255.255.240.0 (/20)
255.192.0.0 (/10)	255.255.248.0 (/21)
255.224.0.0 (/11)	255.255.252.0 (/22)
255.240.0.0 (/12)	255.255.254.0 (/23)
255.248.0.0 (/13)	255.255.255.0 (/24)
255.252.0.0 (/14)	255.255.255.128 (/25)
255.254.0.0 (/15)	255.255.255.192 (/26)
255.255.0.0 (/16)	255.255.255.224 (/27)
255.255.128.0 (/17)	255.255.255.240 (/28)
255.255.192.0 (/18)	255.255.255.248 (/29)
255.255.224.0 (/19)	255.255.255.252 (/30)

d. Setting your PCs IP address: Your router's LAN IP has now been altered but your PC's IP is probably still in the old range – thus making a connection impossible. Please make sure that your PCs IP is updated to the new range, either by DHCP or setting it statically.

   Once your PC's IP is again within the same range as your router's LAN IP, continue with the following steps.

Setting up the VPN-Lite solution:

e. Telnet to the Billion 800VGT: Please repeat step 1a but this time with the router's new updated LAN IP. Once you received the "admin>" prompt, please continue with the next steps.

f. Running the script: The script below sets up the VPN-Lite service on your Billion 800VGT. Please re-type or paste each of these commands into the telnet session that has been opened to the router in step 2a above (while substituting the <angle brackets>).

- Actual commands that need to be run on the telnet session are indicated in blue.
- Please note that bold words enclosed with **<angle brackets>** are user parameters and have to be provided by yourself. Make sure that you substitute all <angle brackets> with your own user specific parameters, before you start executing the script below.
- Please make sure that all commands are run successfully. It is not recommended to copy and paste the whole script at once as possible telnet buffer limitations might cause certain commands not to be pasted correctly.
- Words following "**Comment:**" are comments to the user, and not valid commands.

Comment: Remove current connection:
ip delete interface ipwan
Comment: The above command will generate some warnings/errors – this is normal.
transports delete wanlink

Comment: Setup bridge transport and interface:
rfc1483 add transport @wanlink a1 8 35 llc bridged
bridge add interface ipwan
bridge attach ipwan @wanlink

Comment: Setup Internet Connection:
pppoe add transport wanlink dialout eth 1 pppoe
pppoe set transport wanlink username **<ISP account username>**
pppoe set transport wanlink password **<ISP account password>**
pppoe set transport wanlink createroute enabled
pppoe set transport wanlink autoconnect disabled
pppoe set transport wanlink idletimeout 0
ip add interface ipwan
ip attach ipwan wanlink

Comment: Setup VPN-Lite Connection
pppoe add transport wanlink2 dialout eth 2 pppoe
pppoe set transport wanlink2 username **<VPN-Lite Local site account username>**
pppoe set transport wanlink2 password **<VPN-Lite Local site account password>**
pppoe set transport wanlink2 createroute disabled
pppoe set transport wanlink2 autoconnect disabled
pppoe set transport wanlink2 idletimeout 0
pppoe set transport wanlink2 discoverdns primary disabled
pppoe set transport wanlink2 discoverdns secondary disabled
ip add interface ipwan2
ip attach ipwan2 wanlink2

Comment: Add NATting for Internet Connection
security add interface ipwan external
nat enable ipwan ipwan internal

Comment: Add static routes to private IP ranges facilitating communication with remote VPN-Lite sites:
ip add route vpnlite1 10.0.0.0 255.0.0.0 interface ipwan2

ip add route vpnlite2 172.16.0.0 255.240.0.0 interface ipwan2
ip add route vpnlite3 192.168.0.0 255.255.0.0 interface ipwan2

Comment: Save configuration and restart device:
system config save
system restart

g. After your Billion 800VGT has rebooted, the VPN-Lite solution will be setup and ready for use.